

## ATTACHMENT II

FORD MOTOR COMPANY ALLEN PARK CLAY MINE

US EPA RECORDS CENTER REGION 5



505671

### ENVIRONMENTAL ASSESSMENT

MT-249-09

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#### I. Introduction, Background and Objective of Facility

The Ford Allen Park Clay Mine hazardous waste management area comprises approximately 17 acres. As an existing facility, it is subject to Interim Status under Federal Resource Conservation and Recovery Act (RCRA) regulations and is actively operated. The hazardous waste streams presently disposed of are limited to two materials, both of which are generated three miles away at the Ford Motor Company Rouge Manufacturing Complex in Dearborn, Michigan. The two wastes are decanter coal tar sludge (K087) and electric furnace baghouse dust (K061), which are waste products of cokemaking and steelmaking, respectively.

The landfill is located within the city limits of Allen Park, Michigan. The site was purchased in 1955 by Ford Motor Company for the purpose of mining clay reserves and the subsequent backfilling with Rouge Complex wastes. Ecorse Township issued a permit for the operation on approximately 200 of the 260 acres, the remaining 60 acres of which were designated as greenbelt. Mining and filling continued for 24 years before the enactment of RCRA and Michigan Act 64. As specified in the facility's RCRA Part A permit application, the above identified hazardous wastes are being separately landfilled in the designated hazardous management area shown on the attached drawings.

The overall landfill site is composed of approximately 145 acres of solid waste landfill, 17 acres of hazardous waste landfill, 38 acres of undesignated future landfill, 33 acres of greenbelt and approximately 27 acres have been utilized for easements. The solid waste landfill is currently being upgraded in accordance with MDNR/Wayne County guidelines and Public Act 641.

#### II. Description of Existing Environment

The active hazardous waste management area has been almost completely excavated. Anticipated impact of the hazardous waste landfill on the existing environment is based upon two premises:

- The area has already been affected by prior operations at the site.
- The area will continue to be affected by ongoing adjacent solid waste landfill operations regardless of nearby hazardous management operations.

##### A. Geology

The general site area is located on a lacustrine lake bed whose strata is generalized as follows, per 1976 area soil borings:

<u>Depth Interval</u>		<u>Lithology</u>	<u>Period</u>
0-105'		Lacustrine Sed.	Pleistocene
105-150	Dundee	Ls.	
150-480	Det. River	Dol.	Devonian
480-600	Sylvania	Ss.	
600-640	Bois Blanc	Dol.	
640-875	Bass Island	Dol.	
875-2000	Salina	Evap., Dol. Sh.	Silurian
2000-2200	Niagaran	Dol., Ls., Sh.	
2200-2300	Clinton	Sh., Dol.	
2300-2400	Manitoulin	Dol.	
2400-3000	Cincinnatian	Sh.	Ordovician
3000-3868	Trenton	Dol., Ls.	
3868-3887	Trembeleau	Dol.	
3887-4180	Eau Claire	Sh., Ss.	Cambrian
4180-4308+	Mt. Simon	Ss.	

Mineral rights on the property are owned by Ford Motor Company. A present lease agreement exists for the mining of salt in a Niagaran evaporite seam, which is situated approximately 1100' below the surface. The reserves are actively being mined at the present time by International Salt Co. SALT  
MINE  
SITE

The active hazardous waste management area (17 acres) is currently being stripped, mined and filled with waste. The 7-foot layer of sandy topsoil has been removed and approximately 45 feet of soft blue clay has been extracted on approximately 10 acres. Clay mining at the site is a continuing operation involving the Peerless Cement Company which uses the clay as a raw material in its cement-making operation. This clay horizon is a uniform band ranging in thickness from 64 feet to 69 feet. The clay has an average in-situ permeability of  $5 \times 10^{-8}$  cm/sec, and could be classified as CL material under the Unified Soil Classification System. This horizon has a small dip tending to the south and southwest.

Immediately below the blue clay horizon is an artesian aquifer which consists of very compact brown to gray sand overlying hardpan. The thickness of this aquifer is not known. Refer to Exhibit A for a generalized cross section of the area. Further details may be found in the Hydrogeological Survey, Attachment I to this operating license application.

#### B. Topography

The original surface contours at the site indicate a flat terrain with very little relief. Refer to Exhibit B for general topography around the site area. The original elevation in the area averaged approximately 593 feet (U.S.G.S. Datum). As landfill/clay mining operations have been carried out since 1956, the topography of the land has changed considerably. To the southwest of the hazardous waste disposal area, a large uniform land mass composed of fill material and clay capping has been developed. This fill area is relatively flat across the top but is steeply sloped around the perimeter to the original surface elevation.

### C. Hydrology

Surface Water: Two main drainage courses, the Allen and Tyre drains, ~~originate on the facility property~~ and outflow into the Ecorse River. The Allen Drain is presently being relocated to the perimeter of the property and additional drainage ditches are being constructed. These measures are now underway in accordance with Act 641 guidelines utilizing a Soil Erosion and Sedimentation Control Permit (SESC) issued by the Wayne County Health Department, and are intended to reduce standing water and protect landfill operations from storm water infiltration. The present drainage system is depicted in Exhibit C. At the time of the survey, present restriction of flow in the drains off-site has resulted in high water levels in the drainage system on-site.

Uncontaminated surface drainage from the hazardous waste disposal area will be primarily to Allen Drain. Surface run-off into the current excavation is pumped into this drain. Surface run-off into the current hazardous waste disposal cell is pumped into bulk tanker trucks for disposal off-site. This liquid is manifested under Michigan Act 136 and is discharged into the Rouge Complex sanitary sewer system in compliance with applicable Detroit Water and Sewerage Department Sewer Use Regulations. (See Process Flow Schematic, page 3C of 7 of the attached operating license application.)

Groundwater: The aquifer immediately below the blue clay aquiclude occurs at approximately the 521' elevation. The artesian head is to an approximate 610' elevation. The high artesian head with respect to the hazardous waste fill, makes aquifer contamination from leaching highly unlikely. The aquifer flow direction is indicated to be easterly. (See Hydrogeological Survey, Attachment I.)

In the undisturbed portions of the facility, there lies a 5 - 10-foot layer of fine brown sand beneath the topsoil. Because this zone could be water bearing if not properly drained, competent monitoring and management of the hazardous waste disposal area is required. Appropriate diking measures are being taken.

### D. Soils

Soils in the hazardous waste disposal area are absent, but excerpts from the USDA Soil Conservation Service soil survey are provided for perspective of the past and of adjacent soil types. The survey indicates that the area had and/or has the Hoytville-Nappanee soil association. Refer to Exhibit D for appropriate soil descriptions. The final cover for the hazardous waste landfill area is expected to consist of 5 feet of compacted clay with a sandy loam topsoil supportive of a pasture blend of grasses.

### E. Climate

Climate plays an important role in the operation of any landfill. The potential problems identified below must be considered and appropriate mitigating measures taken. (See Failure Mode Assessment, Attachment III.) Complications resulting from weather conditions at this particular landfill include:

1. Control of stormwater run-off in the early spring, if the surface is frozen and there is an abundance of meltwater.
2. Wind damage to the tree screens can result, exemplified by the 1980 windstorm which toppled a major portion of the tree screen along the northeast perimeter of the property.
3. Dry windy days can contribute to unacceptable fugitive dust conditions.

Some of the pertinent meteorological data\* for the area is as follows:

Avg. annual wind speed	10.0 knots
Mean annual temperature	50.4°F
Mean Jan. temperature	24.8°F
Mean July temperature	73.5°F
Mean annual precipitation	29.75"
Mean annual snowfall	32"

\*Based on U.S. National Weather Service records for the period 1953-70.

#### F. Terrestrial Systems

Flora: There is no flora on the current hazardous waste disposal area. The anticipated flora upon closure would be pasture grasses. Although the area originally supported a mature hardwood stand, poor surface drainage (due to poor relief and the high clay aquiclude) resulted in trees with underdeveloped root systems. Such trees with little basal support have historically been easy victims of wind damage, as evidenced by the 1980 windstorm which fell a large portion of the tree stand in the northeast and east site areas. As the landfill operations proceeded, a tree screen was left intact around the property perimeter. The remaining stand of trees in the northeast corner is presently being logged so that the area may be incorporated into the landfill operation.

The Characteristic vegetative patterns in the vicinity of the site are described below and delineated on Exhibit E.

Area I (35 acres) is a wooded swamp. Hardwoods remaining in this sparse stand are approximately 75-150 years old. A large portion of the stand has topped resulting in a flourishing understory. The poor drainage in the area supports small scattered aquatic systems.

#### Overstory Includes

Predominant tree types are red oak, poplar and silver maple. Associated tree types are red maple, white oak, sycamore, beech, black gum, hickory, tulip poplar and ash. Understory consists of a variety of native plants including:

pigweed	staghorn sumac
horseweed	common mullein
velvetleaf	bull thistle
pokeweed	water plantain
wild grapevines	cocklebur
Queen Ann's Lace	common plantain

ragweed  
Timothy  
common cattail  
wool grass

poison ivy  
raspberry  
soft rush

Area II (30 acres) is the greenbelt along the Tyre Drain and reflects a transitional nature. Growth is in a developing stage with the overstory and understory meshed together such that a solid vegetative screen is formed. The only conifers on the property (about a dozen blue spruce plantings perhaps 20 years old) are along Outer Drive. There is also a small aquatic population in the drain in this area. Overstory consists of the predominant tree types of poplar, silver maple and red oak, as well as the associated tree types of wild cherry, red maple, olive and tulip poplar. Understory consists of a variety of native plants, including:

wild grapevine  
staghorn sumac  
common mullein  
bull thistle  
water plantain  
raspberry  
poison ivy  
wool grass

cocklebur  
common cattail  
ragweed  
pokeweed  
pigweed  
horseweed  
Queen Anne's Lace  
soft rush

Area III (140 acres) is an open field where grasses were originally planted as a Pasture Blend, 20% tall tescue, 20% Timothy, 20% orchard grass, 12% alfalfa, 12% red clover, 9% rye, 5% bluegrass, 2% Ladino clover. These grasses have given way to Wild Carrot.

Fauna: Animal life is quite dense in the wet vegetated undeveloped areas in the vicinity of the site. The loss of habitat for the original population has resulted in a dense surviving population. A list of major characteristic animals would include:

#### Mammals

opposum  
raccoon  
cottontail rabbit  
muskrat

red fox  
tree squirrel  
chipmunks  
mice  
woodchuck

#### Birds

hawk  
blue jay  
crow  
pheasant

owl  
sparrow  
cardinal

#### Reptile & Amphibians

toad  
frog  
garter snakes



Aquatic Systems: The aquatic life is maintained by the drainage system on the facility site, but is poorly developed. Vegetative life is exclusive of submerged or floating aquatics and is characterized by common cattail, soft rush, water plantain and wool grass. Animal life is characterized by muskrats, frogs and insects. Most of the other animal life is interrelated to the aquatic system, although not completely supported by it.

Air Quality: Airborne particulate matter in the area has been a periodic concern at the facility site. Road dust and bulldozing of the waste are aspects which require mitigating measures at this and most any other landfill operation, as discussed in the Failure Mode Assessment, Attachment III. Community noise from the hazardous waste disposal area has presented no problems to date. This is because of the proximity of the site to the nearest residential area (1500 feet).

Land Use, Social Environment and Archeology: The zoning plan for the area is shown on Exhibit F. The site is in the midst of an industrial corridor centered along Interstate 94. Residential areas are located south of Outer Drive and west of Southfield Freeway. West of Snow Road is a Veterans Administration Hospital. North of Oakwood Blvd. is the Ford Motor Company Automotive Assembly Division General Office and Pilot Plant, and a U.S. Postal Service Bulk Mail Distribution Center. The City of Allen Park recorded a 1980 census population of 34,170. Mean household income was \$29,500, as recorded in the Michigan Industrial Directory. During excavation of the area, no archeological artifacts have been discovered.

### III. Alternatives and Advantages

A landfill operation has existed at the facility site for 24 years. Many of the environmental aspects discussed in this assessment have already been impacted by previous operations. Because the area will continue to be affected by ongoing solid waste landfill operations on site, no additional adverse environmental impacts resulting from the hazardous waste disposal activities should occur.

The only alternative to existing hazardous waste disposal operations would be to haul the material to an alternate site located at a considerable distance farther from the source. There would be a definite cost penalty associated with this alternative. Because the waste generation-to-disposal distance is very short under the present arrangement, energy is saved in terms of fuel for trucking shorter distances and the capital expense of trucking is not wasted on an unnecessary haul route. The risks of a spill are also greatly reduced.

The site geology appears ideal. The clay reserve is indicated to have excellent qualities for containing hazardous wastes. No gas, vectors or appreciable odors are involved with the operation.